

SPHERES MOSR Rendezvous and Docking with the OS (RDOS), Phase II

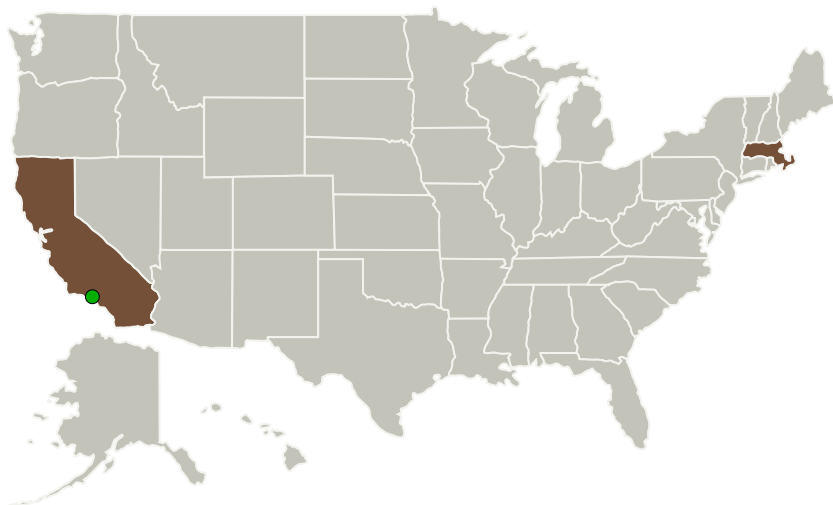
Completed Technology Project (2011 - 2013)



Project Introduction

In order to support the tools needed to develop the Mars Sample Return (MSR) rendezvous and capture of the Orbiting Sample (OS), Aurora and MIT Space Systems Lab proposed the development of the Mars Orbiting Sample Return (MOSR) Rendezvous & Docking with the OS (RDOS) system. This system supports development of GN&C algorithms to address the "last few meters" operation between the chaser spacecraft and OS and extends the capabilities of the current SPHERES MOSR test bed. During Phase 1, the team demonstrated the feasibility of the visual navigation and controls infrastructure for the test bed. During Phase 2, the team proposes to integrate these capabilities into the test bed while engaging the NASA safety process throughout the development effort, resulting in ISS flight payload hardware ready for environmental testing and safety approval.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations	
California	Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Project Transitions



June 2011: Project Start



September 2013: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139368>)

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

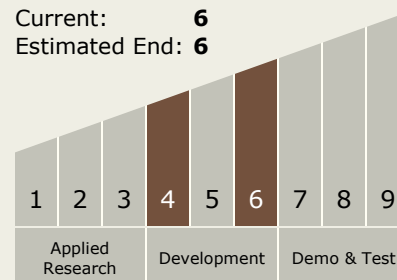
Jeremy Hollman

Co-Investigator:

Jeremy Hollman

Technology Maturity (TRL)

Start: 4
Current: 6
Estimated End: 6



Technology Areas

Primary:

- TX04 Robotic Systems
 - TX04.5 Autonomous Rendezvous and Docking
 - TX04.5.3 Rendezvous, Proximity Operations, & Capture (RPOC) Flight and Ground Systems

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Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System